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A study was designed to evaluate the effectiveness of principals in structuring teaching teams; to assess background and personality characteristics appearing essential to successful individual and team performance; and to select personality factor scores which would predict individual and team success. Subjects were 31 teaching teams (99 teachers) from nine secondary schools in a district which had experimented with team teaching for 5 years. A group of judges (the nine principals, their deans, and five university consultants) evaluated the instructional performance of each team using a five-point rating scale; they deemed 16 teams to be performing at high levels of expectation, 15 at lower levels. They listed eight background characteristics and eight personality characteristics appearing to affect team performance. The chi square test was used to determine relationships between performance and background characteristics (only education and team experience were significant) and personality characteristics as measured by the "Sixteen Personality Factor Questionnaire." Conclusions: There are personality factors definitely related to team teaching performance (cooperation, emotional stability, aggressiveness, enthusiasm, adaptability, confidence, and experimentation) which are not easily determined through observations. Personality tests would increase the effectiveness of structuring successful teams. (JS)

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Team Teaching

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Grouping teachers for instructional purposes as an administrative pattern is not a new concept; but participation in an instructional group often is a new and different role for classroom teachers, one in which they have not been trained and for which they do not have the personality to perform successfully. A review of literature concerning team teaching suggests that explorations are necessary in the areas of personnel, equipment and facilities, scheduling, and pupil progress.

The focus of this article is upon the selection and assignment of teachers to team teaching. It is based upon the author's experience and research in Jefferson County, Colorado. The study was designed to: (1) Evaluate the effectiveness of principals in structuring teaching teams; (2) Assess those background and personality characteristics appearing essential to successful individual and team performance; and (3) Select scores on each personality factor which would predict individual and team success.

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Setting of Investigation

Eight high schools and one junior high school in the Jefferson County, Colorado, School District provided the setting for the investigation. This county school district was an opportune choice because of the district's five years of experimentation in team teaching, the excellent cooperation and encouragement received from the school administration and teachers, and the author's own three years of experience in the system. Thirty-one teaching teams including 99 team teachers were participants in the study. The nine school principals with their deans, and also five consultants from Denver University, acted as judges for the inquiry.

The term "team teaching" is defined as an instructional arrangement

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which allows teachers to plan, teach, and evaluate cooperatively. According to Drummond (see selected references) there are five basic types of team teaching with, of course, many variations of each of them: (1) A hierarchy structure with a leader of superior educational preparation and leadership qualities, senior teachers, part-time teaching assistants, and clerical aides; (2) A coordinate structure of two or more teachers who plan together with equal authority; (3) A structure which involves several teachers and a two- or three-period block of related content (for instance, American history and American literature); (4) A provision of additional help for the regular teacher in the form of instructional secretaries, graders, assistants, and audio-visual experts; (5) A trading of teachers to make the most of particular strengths. The latter informal practice is perhaps the oldest form of team teaching, having been used for many years in elementary schools.

In the Jefferson County school system the teams varied from the coordinate teacher design to a more complicated hierarchy of several teachers with one designated as team leader, a paraprofessional or teacher assistant, and a clerk. The prin-

cipals, deans, three or four parents, two or three students, and a college consultant were frequently engaged as a steering committee for each group. Teaching teams ranged in size from two to six teachers. Subjects taught included English, mathematics, science, social studies, foreign languages, commercial subjects, and physical education. No extra monetary compensation was allowed teachers for team teaching. Team teaching leaders, however, received a reduced class load.

A criterion for the inquiry was produced by the judges' ratings on instructional performance within the 31 teaching teams. This criterion for the inquiry was shown on a five-point scale (5-superior; 4-excellent; 3-average; 2-below average; and 1-poor) which allowed estimates to be made of the degree to which a team was or was not instructionally successful. On the basis of this scoring there were found to be 16 teaching teams performing at a high level of expectancy and 15 performing at a lower level. There were 47 teachers in the higher rated teaching teams and 52 in the lower rated teams. This suggests that the school principals had been only about 50 per cent effective in structuring and assigning teaching teams despite their more than five years of extensive study and participation in the philosophy and practice of team teaching.

Background Characteristics

The judges were asked to list those background and personality characteristics appearing to affect performance in team teaching. They proposed eight background characteristics: (1) age, (2) sex, (3) teaching experience, (4) years since college, (5) degree held, (6) teaching presently in major or minor field of preparation, (7) years performed as a team leader, and (8) years performed as a team member. When these background and personality factors were compared with actual team performance the results were as shown in Table 1.

Table 1.
CHI-SQUARE VALUES SHOWING RELATIONSHIP BETWEEN BACKGROUND CHARACTERISTICS AND TEAM PERFORMANCE OF THE NINETY-NINE TEAM TEACHERS IN JEFFERSON COUNTY, COLORADO PUBLIC SCHOOLS

CHARACTERISTIC	Chi-square	P
Age	1.02	NS *
Sex	1.78	NS
Teaching Experience	1.66	NS
Years Since College**	2.06	NS
Degree Held	7.64	.01
Presently Teaching in Major, Minor, Other Field	12.40	.001
Years as Team Leader	9.46	.01
Years as Team Member	13.52	.001

* NS - Not Significant at .05 Level

** Years Since College probably would have proved significant under other conditions. This school system rewards employees with salary increases for earning additional college credit.

Contingency coefficient and chi-square values compiled on the relationship between team size, subject taught, and performance were not significant at the .05 level.

Personality Characteristics

The judges were also asked to list in rank-order those personality characteristics appearing to be essential in successful team teaching. They named eight variables in the following order of importance: (1) cooperative, (2) intelligent, (3) enthusiastic, (4) friendly, (5) experimental, (6) conscientious, (7) creative, (8) mature.

These personality characteristics had not received priority in the original formulation of Jefferson County teaching teams. In fact, little consideration had been given to personal characteristics. Criteria for selection

and assignment to a teaching team had been primarily a college degree, some preparation in the subject to be taught, prior teaching performance, and in some instances, a desire to participate. In delegating responsibility as team leaders, additional attention had been given to prior teaching experience plus some judgment concerning the individual's proven leadership abilities.

As a predictive instrument, the *Sixteen Personality Factor Questionnaire, Form B,* designed by R. B. Cattell, D. R. Saunders, and G. Stice was applied in the investigation. The instrument measured all the personality traits listed above by the judges as well as eight others. The nature of the 16 personality traits measured by this predictive instrument and the interpretation of scores on each is as follows:

A. *Cooperative vs. Obstructive.* In questionnaire responses the higher scoring individuals express marked preference for occupations dealing with people, enjoy social recognition, and are generally willing to go along with expediency; while the lower scoring persons like words or things (particularly material things), working alone, intellectual companionship, and avoidance of compromise. There is evidence that collections of higher scoring persons more readily form active groups, and there is experimental proof that they are more generous in personality relationships.

C. *Emotionally Stable vs. Unstable.* In experimental group dynamics it is shown that groups of high average maintain better group morale. Occupationally, individuals having to adjust to difficulties thrown upon them from outside, e.g., teachers, engineers, salesmen, and firemen, run well above average on this factor.

E. *Aggressive vs. Submissive.* Groups averaging high on this factor show more effective role interaction and democratic procedure. They feel free to participate, they raise group problems, and they criticize group defects.

F. *Enthusiastic vs. Sober.* Elected leaders are far higher than followers on enthusiasm but the difference is scarcely significant for effective leaders. In group interaction measures, enthusiastic persons receive many votes, are widely accepted, and receive significantly more ratings as effective speakers.

G. *Conscientious vs. Undependable.* The applied social validation data show that high scores significantly distinguish leaders of all classes and are associated in all members with a higher percentage of group-task oriented participation of all kinds.

H. *Adventurous vs. Shy.* The low scoring individuals report themselves to be intensely shy, convinced of their inferiority, slow and impeded in expressing themselves, disliking occupations with personal contacts, preferring one or two close friends to large groups, and unable to keep in contact with all that is going on around them. Presumably this factor is a very important one in distinguishing suitability for those occupations demanding ability to face wear and tear in dealing with people and gruelling emotional situations.

I. *Sensitive vs. Tough.* Group

performance tends to be poorer with higher scoring individuals, such individuals receiving significantly more descriptions as fussing, hindering group performance in arriving at decisions, and making social - emotional negative (morale upsetting) remarks.

L. *Suspicious, Cautious vs. Adaptable.* In terms of criterion associations, the high scoring persons in group dynamics experiments are rated as unpopular, and groups averaging high in this trait are significantly less cohesive and have lower morale.

M. *Imaginative vs. Practical.* Higher scoring individuals tend to feel unaccepted in groups but unconcerned. They participate and make original leadership suggestions and are not immediately ignored, but their suggestions turn out to be rejected. They express significantly more dissatisfaction with the group unity and its regard for rules of procedure.

N. *Shrewd vs. Vague.* In group dynamics, high scoring persons lead in analytical, goal-oriented discussion and in providing constructive solutions, while low scoring persons receive more checks as slowing and hindering proceedings.

O. *Insecure vs. Confident.* In group dynamics, high scoring persons do not feel accepted or free to participate, are considered shy, ineffective speakers and hinderers, but remain religiously task-oriented in their remarks; they select few peers as friends, and have high standards of group conformity to rules. High scoring persons are strongly weighted against successful leadership in face to face situations and are correlated significantly with accident proneness in automobile driving.

Q_1. *Experimental vs. Conservative.* There is evidence that the high rated persons are more well-informed, more inclined to experiment with problems' solutions, and less inclined to moralize. In group dynamics, the high rated persons contribute significantly more remarks to discussion with a high percentage of the remarks being of a critical nature.

Q_2. *Self-Sufficient vs. Dependent.* The test items show persons who are resolute and accustomed to making their own decisions independently. At the lower pole are persons who go more with the group, definitely value social approval, and are conventional and fashionable. In group dynamics, the high scoring persons are significantly more dissatisfied with group integration, make remarks which are more frequently solutions than questions, and tend to be rejected.

Q_3. *Will-Controlled vs. Lax.* According to loaded items, the high ranked persons show socially-approved character responses, self-control, persistence, foresight, consideration for others, and conscientiousness. In group dynamics a high score picks out persons especially who will be chosen as leaders, but even more so those who are effective rather than merely popular. They characteristically make more remarks than others, especially problem-raising and solution-offering, receive fewer votes as hinderers, and fewer rejections

at the end of the sessions.

Q_4. *Excitable vs. Composed.* Group dynamics experiments show that persons high in this trait rarely achieve leadership (but only at 5% P level); they take a poor view of the degree of group unity, orderliness, and the existing leadership quality, and receive few votes (all beyond 1% significance level). The morale of effort dimension in small groups is at a higher level with lower scoring individuals.

After determining that the school principals had been only about 50 per cent effective in structuring their teaching teams through regular placement procedures, it was decided to check their ability to estimate the dimensions on each personality factor among the teachers. At the time of the investigation, each principal had known his teachers for a least six months. He was asked to make two estimates on each of the above 16 factors: one rating at the time the teachers were assigned to a teaching team and the other at the time of this study.

Table 2 shows the principals' ability to make judgments on the various personality factors.

Three things in Table 2 appear to be significant: (1) Principals were most effective in evaluating those factors associated with overt behavior; (2) Knowing and observing a teacher for a period of time improves the principals' ability to assess certain factors but does not help, and may even hinder, accurate judgment on others; and (3) Some device is needed to help improve the principals' accuracy on those personality factors affecting performance of leaders and members in teaching teams.

In structuring a team around these factors, the team score is the significant score which should be maintained. Individuals may perform above or below these critical scores, but if the team level is maintained, performance should be satisfactory. Table 3 shows benchmark scores recorded in the Jefferson County investigation.

TABLE 2.

CHI-SQUARE VALUES EXPRESSING THE RELATION BETWEEN SCHOOL PRINCIPAL RATINGS AND ACTUAL PERSONALITY FACTOR TEST SCORES OF TEAM TEACHERS

FACTOR[1]	Chi square AT TIME TEACHER ASSIGNED TO TEAM[2]	Chi-square AT TIME OF STUDY[2]
A	7.44	26.46
C	11.81	14.07
E	9.02	16.93
F	15.75	32.70
G	15.00	21.41
H	12.15	28.17
I	7.10	27.88
L	9.42	14.60
M	14.22	13.41
N	10.44	15.82
O	13.61	15.65
Q_1	10.79	17.35
Q_2	1.76	14.14
Q_3	7.02	6.64
Q_4	8.96	27.21

1. Factors refer to personality characteristics described in article above.
2. Critical values of chi-square with sixteen degrees of freedom:
   P.05 = 26.30
   P.01 = 32.00

Conclusions

The following conclusions may be drawn from the investigation:

(1) There are personality factors definitely related to performances in team teaching that are not easily determined through observations. Principals had been approximately 50 per cent successful in their selection of individuals based on personal observation.

(2) Personality tests, such as in this investigation, would increase the effectiveness of structuring successful teaching teams.

(3) Traits of cooperation, emotional stability, aggressiveness, enthusiasm, adaptability, confidence, and experimentation are significantly related to successful team performance.

TABLE 3.

SCORES OF SUCCESSFUL TEAM MEMBERS, TEAM LEADERS, AND TEAMS ON PERSONALITY FACTORS

FACTOR[1]	RAW SCORE POSSIBLE	TEAM MEMBERS[2]	TEAM LEADERS[2]	TEAM[2]
A	20	12.6	14.6	12.5
C	26	13.2	16.9	15.6
E	26	11.3	15.1	13.1
F	26	12.6	15.7	14.2
G	20	13.5	14.8	13.7
H	26	11.0	15.6	14.8
I	20	−13.7	− 9.9	− 9.0
L	20	− 8.2	− 6.0	− 7.5
M	26	−11.1	− 8.7	−11.9
N	20	10.6	13.2	14.4
O	26	−10.0	− 8.8	− 9.2
Q_1	20	10.9	8.0	8.9
Q_2	20	−10.9	− 8.0	− 8.9
Q_3	20	11.7	14.0	12.8
Q_4	26	−12.3	− 8.4	−12.0

1. Factors refer to personality characteristics described in article above.

2. Minus (−) scores indicate all scores were as low as or lower than that number. Other scores were as high as or higher than these numbers.

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Editor's Saddlebag

Following publication of its first progress report in June, 1962, the Study Commission on Evaluative Measurements has developed factor-measurement instruments in the areas of Pupil Progress and Curriculum. Three new areas will be included in their next publication which is in preparation. The title of their first report was *Evaluative Measurements* written by Research Assistant Eugene A. Todd. This report covered the results of factor-measurement in the areas of School Finance and Professional Staffing.

The first report showed graphically the standard score distribution of GUSREDA schools on financial factors such as assessed valuation per ADA by district, estimated actual valuation per ADA, local revenue per ADA. It compared the standard score distribution of GUSREDA schools on such professional staffing factors as classroom teachers per 1000 enrollment, specialists per 1000 enrollment, and average in-system professional experience. These multiple factors of GUSREDA school districts were shown graphically in comparison with comparable data of the Metropolitan School Study Council (Teachers College, Columbia University) and Associated Public School Systems (a nationwide school study council).

The next report will extend the technique of showing graphically the standard scores of districts to include data from the questionnaire to GUSREDA schools on the pupil progress and curriculum factor-measurements. Also it will introduce multiple correlations among the factors determined thus far, such as the correlation of current expense per ADA to other items.

The Study Commission on Summer School Programs is compiling descriptive data on the 1962 summer sessions in public schools reported by each commission member. The study commission will evaluate such hypotheses as the spill-over of the overcrowded curriculum, twelve-month school year, upward summer enrollment trends, local programs as part of a state program, and need for administrative direction.

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The recently organized Study Commission on Elementary School Guidance is analyzing the detailed plans for elementary guidance in the commission member districts and compiling background information on national trends and views. This commission is following up the earlier GUSREDA publication titled *Outline For Elementary School Guidance* (1956). Of particular concern to the commission is the question of personnel and provisions that are made for elementary school guidance services.

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The Research and Exchange Committee of the Executive Board has been looking ahead to new research for 1963-64. At the representative spring Planning Assembly on May 16, 1963, they will recommend for new GUSREDA research such widely spread areas as interpretation of testing programs, education for character development, impact of space administration on school programs in this region, high school library usage, substitute teacher practices, catalogue of GUSREDA schools, budget forms for school building units, sources of new teachers, taxes paid by benchmark properties, and matching funds for local school district projects.